



# Marshmallows In Motion

*A Unique Design Challenge  
for Young Inventors*



# **How Students, Teachers, and Technology**





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# PROJECT PARTICIPANTS:

- ✿ 61 Fifth Grade Students - 21 Invention Teams
- ✿ 21 High School Students - 7 Mentor Teams
- ✿ Curt Bixel, Secondary Science Teacher
- ✿ Crista DeVore, Fifth Grade Teacher
- ✿ Carol Collier, Library & Media Specialist
- ✿ Toby Fischer, 21st Century Coach
- ✿ Lucas Gordon, Technology Support



# PROJECT GOALS:

TO IMMERSE STUDENTS IN THE DESIGN PROCESS

TO INSPIRE COLLABORATIVE PROBLEM SOLVING

TO NURTURE CRITICAL THINKING SKILLS

TO BUILD AN APPRECIATION FOR PERSISTENCE AND CREATIVITY AS VALUABLE  
BEHAVIORS FOR SCIENTISTS AND INVENTORS

- ✻ Learn about scientific concepts through investigative work and inquiry
- ✻ Learn about technology by using it to communicate and share ideas
- ✻ Learn about engineering by building an invention to solve specific problems



# CLASSROOM, MOODLE, ICHAT

- ✿ Classroom Activities and Experiments
- ✿ Online Lessons, Assignments, and Inventor Logs (Moodle)
- ✿ Collaborative Invention Building (iChat)
- ✿ Culminating Learning Experience:  
Participation in The Design Challenge

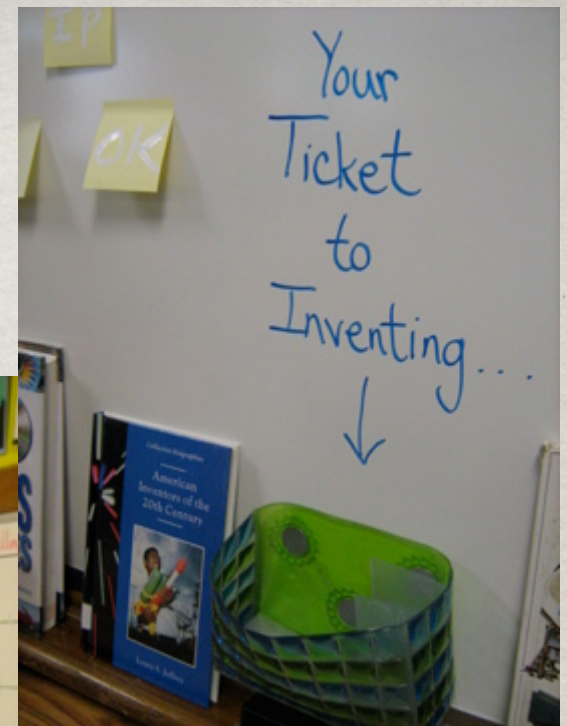
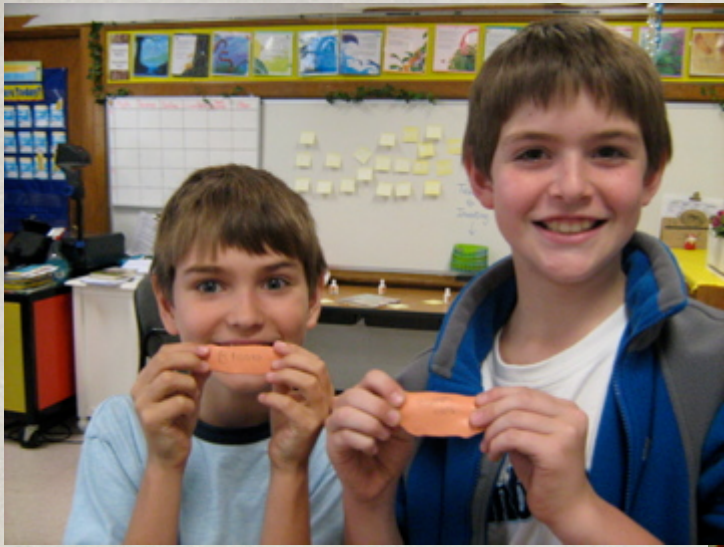


## I. IGNITING STUDENTS' CURIOSITY AND SENSE OF WONDER

### INTRODUCTORY ACTIVITIES IN CLASSROOM AND LIBRARY

- ✻ Ticket to Inventing...Learn about Other Inventors' Experiences and Great Mistakes!
- ✻ Post it Notes, Liquid Paper, Chocolate Chip Cookies, Coca Cola, and Silly Putty
- ✻ Observations, Problems, Inspire Innovation
- ✻ Mistakes and Failures Often Lead to Creative Solutions and Great Success!







## II. MOODLE ONLINE SCIENCE COURSE

- ✿ What is Moodle?
- ✿ A dynamic learning environment for personal reflection, critical thinking, and analysis



# HOW DID WE USE MOODLE?

- ✿ Students posted work on the Moodle Science Course site
- ✿ Teacher posted timely responses that provided specific, feedback to each student
- ✿ Full participation; All students had a “voice”
- ✿ The Moodle work was “linked” to classroom activities



# YOU ARE INVITED TO “LOG IN” AND SEE HOW IT WORKS:

## HERE ARE SOME SAMPLE MOODLE ASSIGNMENTS

- ✿ Opinion - What personality traits, work habits, and thinking skills do you believe an inventor must have? Compile the data to create a top ten list.
- ✿ Prediction - Identify and describe the skills you have that will make you an excellent inventor. Describe what part of the design process you will enjoy.
- ✿ Interpretation - Famous quotes to analyze. What do the quotes mean?
- ✿ Investigation and Research - Can kids be successful inventors? Visit the website for National Gallery of American's Young Inventors. What problems did they solve with their inventions? What inventions have transformed our society during that last century? Visit the website for the Inventors Hall of Fame and create a timeline of these inventions. Read about the American Industrial Revolution and then watch the Brain Pop movie to learn more about this topic. Visit the website of the United States Patent Office to learn about patents and trademarks. Share your findings with other students during class discussions and with Mrs. DeVore online.





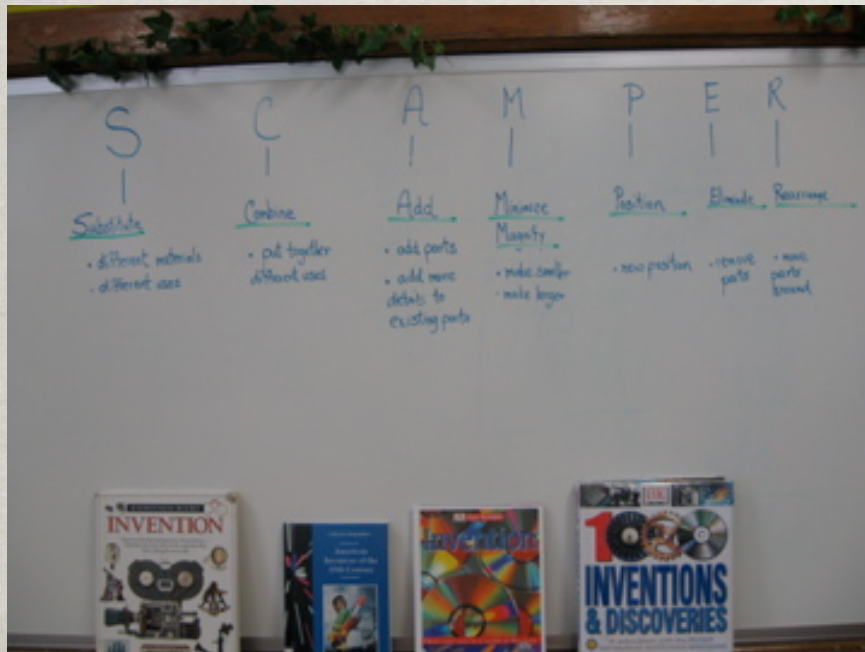
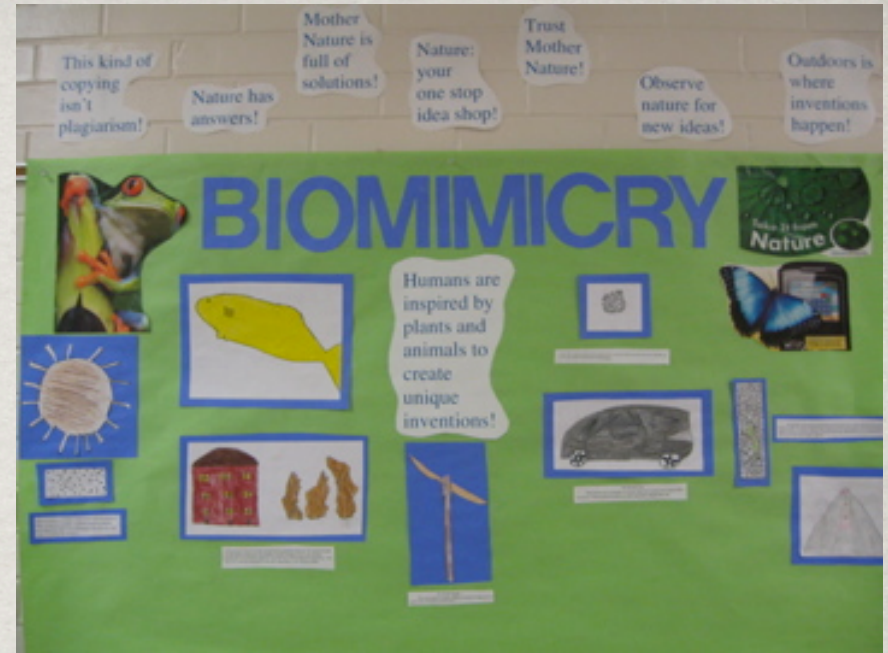
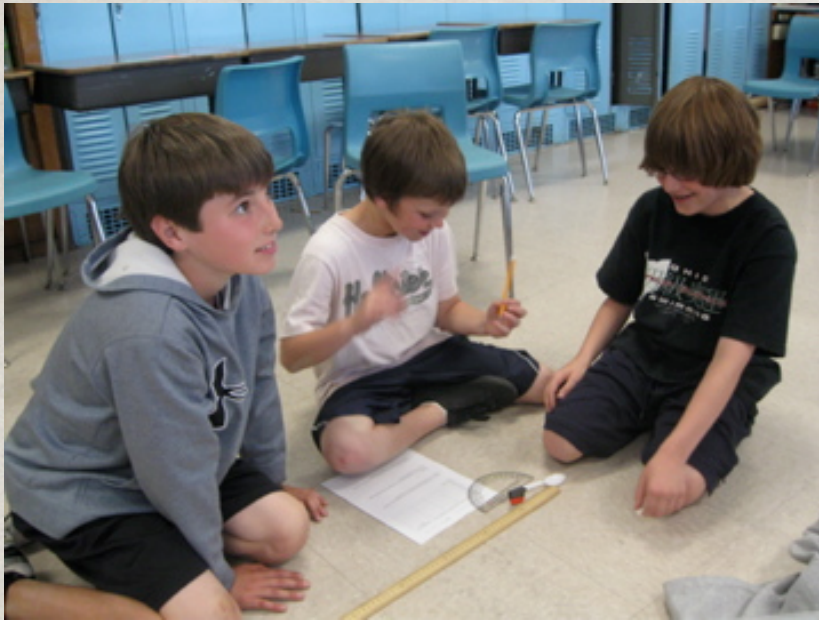


### III. MORE FUN AND LEARNING...

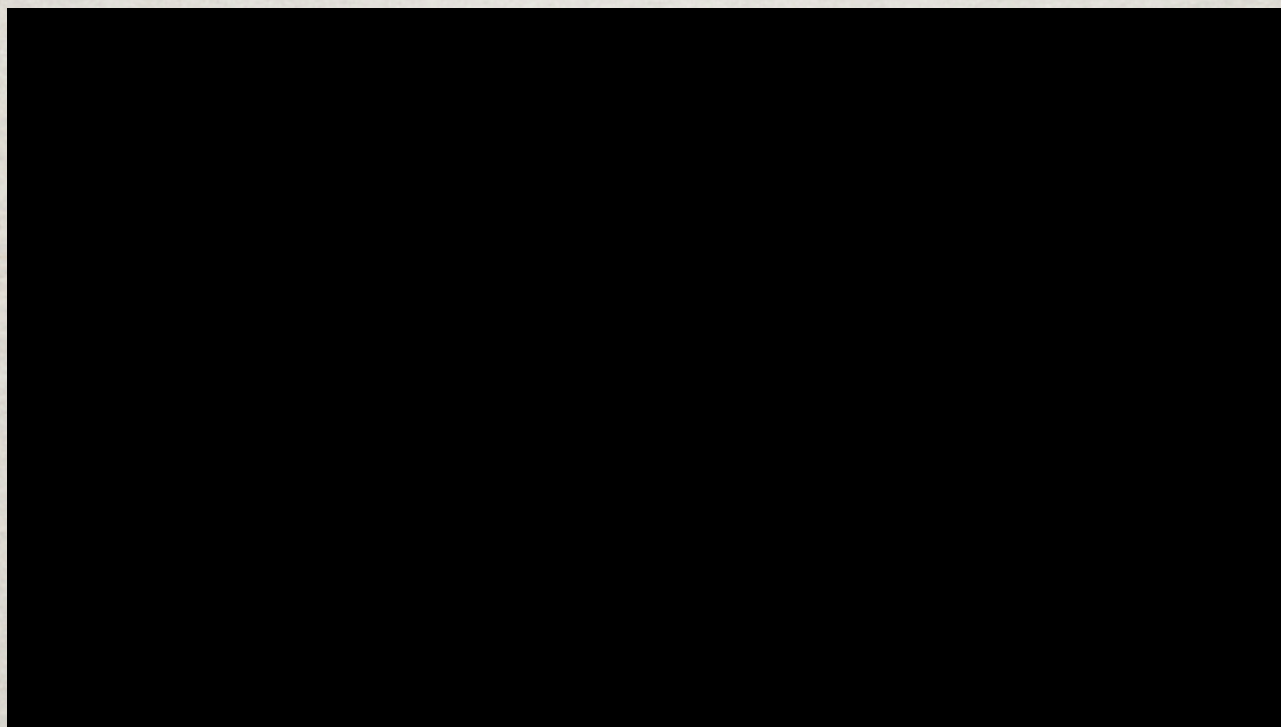
## INQUIRY ACTIVITIES IN THE CLASSROOM

- ✻ Mimicry - Scientists and inventors borrow ideas from the plant and animal world
- ✻ SCAMPER - Strategies for creative design and inventing
- ✻ Emerging Technologies - New Discoveries!
- ✻ Catapult Lab and Force and Motion Work











## IV. ANNOUNCING THE DESIGN CHALLENGE!

- ✿ Marshmallows In Motion - Can you design a device to accurately launch a large marshmallow?
- ✿ 6 Design Problems To Solve: Distance, Height, Accuracy, Blind Shot, Moving Target, Ricochet Shot
- ✿ Innovation & Creation of 21 Invention/Design Teams
- ✿ Inventors' Logs on Moodle; Collaborate with Mentors via iChat



**V. ICHAT**  
**FIFTH GRADE INVENTORS**  
**AND HIGH SCHOOL MENTORS**  
MEET AND WORK TOGETHER TO BUILD MARSHMALLOW LAUNCHERS

- ✻ First iChat Session: Introductions and Team Building, Mentors Share their Rubber Band Car Inventions and Offer Advice on The Design Process and Inventor's Traits
  
- ✻ Second iChat Session: Fifth Graders Show Their Prototypes to Mentors and Discuss Their Concerns, Mentors Provide Suggestions and Offer Encouragement, All Work Together to Revise Prototype Design



# THE ICHAT SET-UP









**So what else did we learn?**



# VI THE DESIGN EVENT!

INVENTION TEAMS

MEET MENTORS AND TEST INVENTIONS

**Meet the Teams !**



# VII - AWARDS AND REFLECTION

